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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,865	01/14/2002	Henning Trappe	TRAPPE ET AL. 2 (PCT)	8821

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WILLIAM COLLARD
COLLARD & ROE, P.C.
1077 NORTHERN BOULEVARD
ROSLYN, NY 11576

EXAMINER	
LE, TOAN M	

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 08/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/030,865	Applicant(s) TRAPPE ET AL.	
	Examiner Toan M Le	Art Unit 2863	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 May 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12,13 and 15-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12,13 and 15-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12-13, 15-16, and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Bahorich et al..

Referring to claim 21, Bahorich et al. disclose a method for processing a seismic 3-D measurement data set comprising a multitude of traces, each trace having a sequence of data points provided with amplitude values or acoustic impedances, which comprises the steps of: (a) selecting an absolute reference section at a predetermined location and depth which comprises neighboring traces portions of several seismic traces (col. 2, lines 11-13; col. 5, lines 31-65; col. 6, lines 21-30; col. 9, lines 1-2; figure 7); (b) determining the similarity between the selected absolute reference section and local sections of seismic data from the measurement data set and allocating a similarity value based on the determined similarity to each data point (col. 2, lines 13-24; col. 5, lines 31-65; col. 6, lines 21-30; col. 9, lines 3-17); and (c) creating a volume of data corresponding with the measurement data set using the similarity value which has been determined and allocated to each data point as the attribute (col. 2, lines 24-28; col. 9, lines 18-24).

As to claim 12, Bahorich et al. disclose a method for processing a seismic 3-D measurement data set comprising a multitude of traces, each trace having a sequence of data points provided with amplitude values or acoustic impedances, wherein the size of the absolute reference section and the local sections comprises 3 to 7 points per dimensional direction (col. 5, lines 31-65; col. 6, lines 21-30; col. 9, lines 5-13; figure 3).

Referring to claim 13, Bahorich et al. disclose a method for processing a seismic 3-D measurement data set comprising a multitude of traces, each trace having a sequence of data points provided with amplitude values or acoustic impedances, wherein the local sections and/or the absolute reference section are deformed according to a local preferred dip and preferred dip direction (col. 5, lines 31-65; figure 6).

As to claim 15, Bahorich et al. disclose a method for processing a seismic 3-D measurement data set comprising a multitude of traces, each trace having a sequence of data points provided with amplitude values or acoustic impedances, wherein during the selection of the absolute reference section, a search is carried out for the dip and dip direction exhibiting the largest similarity among the trace portions belonging to the absolute reference section, whereby afterwards in the determination of the similarity between the absolute reference section and local sections, the specific relative dip between the absolute reference section and the local section conforming to the largest similarity is then determined in each case (col. 4, lines 1-27).

Referring to claim 16, Bahorich et al. disclose a method for processing a seismic 3-D measurement data set comprising a multitude of traces, each trace having a sequence of data points provided with amplitude values or acoustic impedances, wherein in addition to the data

volume with the similarity values, a data volume with the determined dip values and a further data volume with the determined values of the dip direction are formed (col. 4, lines 1-27).

Referring claim 22, Bahorich et al. disclose a method for processing a seismic 3-D measurement data set comprising a multitude of traces, each trace having a sequence of data points provided with amplitude values or acoustic impedances, wherein the method comprises before the step of determining the similarity between the absolute reference section and said local section, the step of searching for specific dip and dip direction for the absolute reference section and each location section which results in the largest similarity of the trace portions from the absolute reference section and each local section, whereby the search comprises an iterative determination of the similarity of neighboring trace portions that are shifted with respect to each other according to dip and dip direction (col. 4, lines 1-27).

As to claim 23, Bahorich et al. disclose a method for processing a seismic 3-D measurement data set comprising a multitude of traces, each trace having a sequence of data points provided with amplitude values or acoustic impedances, wherein the step of determining similarity includes determining the similarity between several different absolute reference sections which are compared with the local sections, and thus several similarity values are calculated for each data point (col. 5, lines 31-65).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at

the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bahorich et al. in view of Neff.

Referring to claims 17-20, Bahorich et al. disclose a method for processing a seismic 3-D measurement data set comprising a multitude of traces, each trace having a sequence of data points provided with amplitude values or acoustic impedances, which comprises the steps of: (a) selecting an absolute reference section, which is formed synthetically with the help of seismic 3-D modeling techniques from a geological model determined by lithological, petrophysical and/or structural parameters at a predetermined location and depth or at several locations in order to be compared with local sections and thus several similarity values are calculated for each data points, which comprises neighboring traces portions of several seismic traces (col. 2, lines 11-13; col. 5, lines 31-65; col. 6, lines 21-30; col. 9, lines 1-2; figure 7); (b) determining the similarity between the selected absolute reference section and local sections of seismic data from the measurement data set and allocating a similarity value based on the determined similarity to each data point (col. 2, lines 13-24; col. 5, lines 31-65; col. 6, lines 21-30; col. 9, lines 3-17); and (c) creating a volume of data corresponding with the measurement data set using the similarity value which has been determined and allocated to each data point as the attribute (col. 2, lines 24-28; col. 9, lines 18-24).

Bahorich et al. do not disclose a method for processing a seismic 3-D measurement data set comprising a multitude of traces, each trace having a sequence of data points provided with amplitude values or acoustic impedances, wherein the absolute reference section is supplied by a

well with ascertained lithological information and wherein the absolute reference section is generated synthetically by convolving down a pre-selected 3-dimensional acoustic impedance distribution from the relevant well log with a representative wavelet.

Neff discloses a method for processing a seismic 3-D measurement data set comprising a multitude of traces, each trace having a sequence of data points provided with amplitude values or acoustic impedances, wherein the absolute reference section is supplied by a well with ascertained lithological information and wherein the absolute reference section is generated synthetically by convolving down a pre-selected 3-dimensional acoustic impedance distribution from the relevant well log with a representative wavelet (Abstract; col. 87, lines 5-30).

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have applied the method as described in the Neff reference into the method of Bahorich et al. for identifying structural and stratigraphic features and determining petrophysical properties for the exploration of hydrocarbon.

Remarks:

Response to Arguments

Applicant's arguments filed 5/30/03 have been fully considered but they are not persuasive.

Referring to claim 21, Applicant argues that "Bahorich et al. does not disclose a process of finding an absolute reference section and instead conducts a similarity analysis using only localized points".

An absolute reference in the specification, page 8, lines 3-10, "It is important to the invention in this connection that the comparison of the local section viewed in each case is

carried out with a predetermined reference section that consists of neighboring trace portions of a plurality of seismic traces as well. An absolute reference is created in this way to a reference pattern which, in addition to the temporal extension along a seismic trace (time series) comprises a lateral extension as well".

Bahorich et al. disclose a process of finding a similarity between an absolute reference section and local sections (col. 5, lines 31-65), "Landmark and GeoQuest interpretive workstations, for example, can be used (see FIG. 8) to view and interpret faults and stratigraphic features by loading the discontinuity cube as a seismic volume... Specific Examples: 2-D seismic coherence maps were generated along picked horizons and clearly identified shale diapers in offshore Nigeria. In offshore Gulf of Mexico, the technique readily identified diapiric structures".

Conclusion

THIS ACTION IS MADE FINAL.

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M Le whose telephone number is (703) 305-4016. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (703) 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0655.

Toan Le

August 8, 2003

John Barlow
Supervisory Patent Examiner
Technology Center 2800